

FUSCOZETES (ORIBATOIDEA-ACARINA) IN THE NORTHEASTERN UNITED STATES

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The genus *Fuscozetes* (4, p. 11) belongs to the *Achipteriinæ* (5, p. 184) because the lamellæ are fused to each other at some point on the median line. It is more primitive than *Tectoribates* or *Joelia* because the lamellæ are fused to each other for a short distance only and because they are much more slender towards the distal half, and the lamellar bristles are not so much reduced.

Only two species are found in the northeastern states: the genotype *Oribates fuscipes* (2, fasc. 38/9) and *Oribatella bidentata* (1, p. 8). As neither of them are described or figured with enough detail to be at all recognizable, this is done below, placing the more primitive species (with its less developed lamellæ) first.

Fuscozetes bidentatus comb. nov.

Figures 3-5, 7-11

Diagnostic characters: Notogastral bristles twenty (there are twenty-four in *F. setosus* (2, fasc. 30/19); distal end of lamellæ slender, untoothed (as in *F. setosus*); distal cusp of tectopodia I so short as not to extend over insertion of rostral bristles (figure 7); pseudostigmatic organs shorter than free portion of lamellæ (compare figures 6 and 7); ventrodistal bristle of femora II proximad of center of length of flange (compare figures 5 and 1).

Description: Shape in dorsoventral view bluntly oval, with distinct, triangular cephaloprothorax, in lateral view ovate, with free, projecting lamellæ, size averaging 0.54 by 0.3 mm. and 0.77 mm. high; color tan (thus being lighter in color and smaller in size than the next); cephaloprothorax (in dorsal aspect) visible as a short, broad triangle between bases of lamellæ, and as a narrow band between them; rostrum broad, somewhat distinct in lateral aspect; lamellæ broad at base, joined on median plane by a distinct but short bridge which is also attached to the cephaloprothorax along posterior edge; distal half of lamellæ

tapering to a blunt apex, the whole making the cephaloprothorax appear covered by a bidentate roof; tectopedia I curved near middle so as to extend beyond edge of cephaloprothorax (figure 8), the free cusp short, the ventral brace weakly developed (figure 7); rostral bristles inserted at base of rostrum, ciliate along lateral edge, not strongly arched (figures 7 and 8); lamellar bristles nearly as long as rostral, barbed; interlamellar bristles quite long (figure 7), burred; inserted close to edge of notogaster and to lamellæ; pseudostigmata projecting conspicuously beyond notogaster, edges rounded, median edge the longer; pseudostigmatic organs (figures 7 and 9) erect, with a few barbs, somewhat blunt; exopseudostigmatic bristles quite long, dorsally curved (figure 7); tectopedia II large, trough-like, almost completely covering the femora, lower edge incised (figure 8); lower edge of camerostome with a spur-like spine running forward from near insertion of legs I (figure 7).

Notogaster with surface appearing smooth; bristles and porose areas as in figures 7 and 8; bristles not fine, rather abruptly tapered, burred along distal half, medium long; porose areas not large, one third to one fourth distance between bristles; a porose area between each bristle pair, thus: a3, b2 p.a. b3, c2 p.a. c3, d2 p.a. d3, e2 p.a. e3, a3 is actually on the ptermorphæ (figure 7).

Ventral plate produced anteriorly as a slight shoulder about side of camerostome, and anterolaterad as tectopedia II, bristle of tectopedia II inserted opposite insertion of legs I, curving ventrad, burred; tectopedia III mammiform; tectopedia IV long, slender, a bristle springs from dorsad of the ridge between these two tectopedia (dotted in figure 7); apodemata I straight, with ental prolongation directed posteriad; apodemata III straight, directed anteriorly of genital aperture; apodemata IV sigmoid; bristle of parasterna I about midway between anterior edge of ventral plate and apodemata I; the three pairs of sternal bristles present, posterior pair quite approximate, middle pair most remote; other parasternal bristles normal (figure 8); genital aperture with strongly arched anterior edge, strongly converging sides and undulate posterior edge; cover bristles 4 nearer posterior than median edge, bristles 3 more remote, halfway between lateral and median edges, close to bristles 4, bristles 2 distant from bristles 3, about as approximate; bristles 1 more

remote than bristles 2; marginal bristles inconstant in position, the mesal tending to move away from edge; genitothoracic suture distinct, extending posterolaterad towards insertion of legs IV; paramesal bristles more remote than diameter of genital aperture, distant from aperture as smallest diameter of a genital cover; anal aperture with anterior edge very narrow, sides strongly converging, posterior edge rounded, the angle unusually anterior; pseudofissuræ long, curved, slender, slightly anterior to middle of sides, paranal bristles as near anterior corner as to end of pseudofissuræ; postanal bristles distant from aperture, fairly long, inserted in pairs, the lateral pair more approximate than greatest diameter of aperture; anterior cover bristles close to lateral edge and slightly further from anterior edge, posterior pair slightly more remote than anterior pair, close to posterior edge of covers.

Labium short, with anterior cusp to fit about palps (figure 8).

Legs with triheterohamate ungues, the lateral hooks very slender. Legs I (figure 4) with tarsi short, the bristles as in figure 1, thus showing a concentration on dorsodistal half, where the bristles are reduced to three, and another concentration on dorsoproximal half where the bristles are also reduced to three, one of them quite long; ventral face bristles fairly smooth, the second moderately barbed. A mesal face bristle, corresponding to proximolateral not figured. Tibiæ with very long major bristle inserted close to distal edge of segment, premajor on very rim of segment; lateral bristle somewhat spinelike; the ventral bristles also somewhat spinelike, shorter, burred, ventromesal (not figured) short, barbed. Genuals as figured, the lateral bristle spine-like, shorter than the tibial, the long dorsal somewhat laterally inserted and curving laterad. Femora oval, with very slight keel or flange on ventral edge, two bristles on dorsal edge, a dorsolateral near dorsodistal, two on ventral edge, the distal one more proximally inserted than the dorsodistal.

Legs II (figure 5) similar but tarsi with more dorsal face bristles, second bristle of ventral face with three strong pectiniform spurs. Tibiæ with shorter major bristles; no premajor. Genuals similar but shorter; dorsal face bristle not long; ventral face bristle long and fine. Femora with large flange which has

a small tooth not far below genual (figure 5), dorsodistal bristle burred; ventroproximal bristle inserted almost on pedicel; ventrodistal bristle inserted proximad of center of segment. One specimen from Maine has another bristle distad of this ventrodistal.

Legs IV (figure 3) quite slender; tarsi with ventral face bristles smooth; tibiae with ventrodistal bristle inserted on extreme distal edge, somewhat spinelike; lateral bristle shorter. Genuals well developed, as long as genuals I; the bristles fine. Femora broadly oval, dorsodistal edge straight, diagonal, flange long, equally broad throughout; bristles fine. Trochanter as in figure 3, the flange extending well back of body of segment; there is a small, very fine bristle on distal corner of flange.

Legs III (figure 10) quite similar but tarsal bristles more numerous; tibiae with bristles inserted nearer distal edge of segment; major bristle somewhat shorter, inserted on distal edge. Genuals short, the bristles longer. Femora with narrower flange; the bristles much longer, the dorso-lateral well developed. Trochanters with much narrower flange, and a well developed bristle on each side.

Material examined: Cliff Id., Casco Bay., Me.: 39 specimens from epigeous moss, evergreen woods; taken August 15, 1919 by Lydia Jacot, slide 1933o1. Twenty-two specimens from spruce needles; taken August 8, 1920,* slide 2023o1. Three specimens from sphagnum moss, cranberry bog; taken September 17, 1925, slides 2543o1, 2544o1.

Upland swamp, East Village, Monroe, Conn.: Ten specimens from epigeous, prostrate, mat-like moss with foliose lichens; taken March 23, 1919, slide 1914o1. Seventeen specimens from epigeous, open cushion moss; taken May 31, 1919, slide 1931o5. One specimen from short moss on rock, May 30th 1920, slide 2014o1. Seven specimens from club moss under snow; taken February 18, 1922, slide 22ao1. Thirteen specimens from sphagnum clump; taken August 18, 1925, slides 2520n2, 2521.2, 2522o1. Two specimens from stump moss; August 24, 1925, slide 2530o1. Seven specimens from grey-green cushion moss on boulder; taken August 25, 1925, slide 2531o1.

* When no collector is mentioned it is understood to be me.

Hemlock gorge, Sandy Hook, Conn.: Nine specimens from hemlock leaf mould; taken June 24, 1926, slide 2613o1. Four specimens from moss on old log; taken June 25, 1926, slides 2614o2 and 2614o3.

Sea Cliff, Long Island, N. Y.: Six specimens; slides 26B10 (Cotypes) and 26B107e.

Dolson (Clarksville), Ill.: Three specimens from moss, near Big Creek; taken January 5, 1933, by Frison and Ross, slide 33IS1/5#34-6b.

Habitat: This species is therefore common in epigeous moss, rare on such elevated moss as found on stumps and boulders. Also in spruce, and hemlock leaf mould of moist microclimates.

Forty-five specimens from moss from New Found Gap, Tenn.; taken September 1, 1930 by Nathan Banks are *F. bidentatus* but have the femora II of *F. fuscipes*. The lamellæ tend to be broader at the apex than in typical *F. bidentatus*.

Fuscozetes bidentatus floridæ subsp. nov.

Lamellæ slightly broader, the sinus almost closed at proximal end, the distal end emarginate; lamellar bristles about as long as length of sinus; tectopodia I much as in *F. fuscipes*; flange of femora II as in *F. bidentatus* but bristle inserted distad of center of segment.

One specimen from dead leaves of Holly-Bay-Hop, dense hammock (Sugar-foot), Gainesville, Florida; taken September 16, 1929 by J. R. Watson. One specimen from moss on clay bank, Hog Twin Creek, southwest of Gainesville, Fla.; taken June 23, 1929 by J. R. Watson, slide 29W6/23-3. One specimen from fallen longleaf pine needles, south shore of Newman's Lake, near Gainesville; taken March 25, 1928 by E. F. Grossmann, slide G55-1. One specimen from fallen oak leaves, upper edge of Devil's Mill Hopper, Gainesville; taken April 24, 1928 by Grossman, slide G76-1. All cotypes.

Fuscozetes fuscipes (2, fasc. 38/9)

Figures 1, 2, 6

DIAGNOSTIC CHARACTERS: Notogastral bristles twenty; distal end of lamellæ truncate, each corner produced as a slender tooth,

making the end of the lamellæ appear dog-eared; distal cusp of tectopedia I so long as to extend well beyond insertion of rostral bristles (figure 6); pseudostigmatic organs longer than free portion of lamellæ; ventrodiscal bristle of femora II distad of center of length of flange.

DESCRIPTION: Differing from preceding species in the following characters: Size larger, averaging 0.7 by 0.44 mm.; color deeper, more reddish; free half of lamellæ tends to be divergent (not parallel); cephaloprothoracic bristles burred; rostrum produced as a blunt keel (figure 2); buttress of tectopedia I well developed (figure 6); rostral bristles inserted more posteriad than incision on camerostone edge; pseudostigmatic organs more pointed; porose areas larger; notogastral bristles stouter, not longer; porose area of bristles d2 and d3 anterior to d2; apodemata stouter, with swollen, anteriorly bent mesal ends; mesal marginal bristle of genital cover often crowded posteromesad to lacking (giving an indication of method of loss of these bristles); anal aperture broader anteriorly with sides more parallel; anal cover bristles more distant from edges; inner edge of anal aperture broadly underlying covers anterolaterally. In one specimen I find two paranal bristles on one side only and no lateral postanal,—another example of a regressional mutation, recapitulating the path of migration of this bristle.

Legs (from American individuals) quite similar but mesal bristle of genuals I quite long. In one specimen femur I has three bristles along ventral edge. Legs II (figure 1) with second ventral bristle of tarsus four to five pectinate (major bristle foreshortened in figure); femoral keel drawn out to a prominently projecting cusp, the ventro-distal bristle not far from distal end of body of segment; ventroproximal bristle more distad than in *F. bidentatus*.

Armature of legs III, and IV more developed; major bristle of tibiæ longer; spine of tibiæ long and stout, prominent; ventral bristle of femora III inserted near center of segment, quite long.

MATERIAL EXAMINED: Ottawa, Canada (Harrington), two specimens, slide 26B114a.

Cliff Id., Casco Bay, Me.: Three specimens from sphagnum moss, cranberry bog; taken September 17, 1925, slide 2544o1.

East Village, Monroe, Conn.: from *Carex stricta* clump of

upland swamp: drooping leaves, on south side, seventeen specimens, August 5, 1925, slides 2511o1 and o3; dead, drooping leaves on east side, eight specimens, August 10, 1925, slide 2514n2; another clump, drooping leaves, twelve specimens, August 15, 1925, slide 2517o1; sides of root mass, ten specimens, August 7, 1925, slides 2512o1, 2513o2. From *C. stricta* clump of marsh: drooping leaves, one specimen, August 28, 1925, slide 2532o1; root mass, three specimens, September 5, 1925, slide 2537o1a and b. Upland swamp, sphagnum clump, seventeen specimens, August 18, 1925, slides 2520h, 2520n2b, 2521o2, 2522o1.

Ithaca, N. Y. and vicinity: Sixteen specimens from under stones, boards, and/or bark of twigs, Six Mile Creek; taken April 14, 1927, slides 176o4 and 176o5. One specimen from Buttermilk Creek; taken May 21, by Nathan Banks, slide 26B81e. One specimen from under bark of logs or twigs or lower face of stone, Michigan Hollow, Danby, April 8, 1917, slide 175o1. Two specimens from marsh, Freeville, taken May 20, by N. Banks, slide 26B75c.

Habitat: From the above it is evident that this species prefers a more moist substratum than the smaller species, and, judging from the difference in numbers between those of the open marsh and of the swamp, shade.

I also have one hundred and two specimens from moss from sides of ditch draining Pürkelgut meadows, barely a mile southeast of Regensburg, Bavaria, slides 3115o2, 3115o3, 3115n4, 3117o2.

On slide 3115o2 I find a well eaten out specimen without labium and mouth parts, containing three well grown larvae. On slide 2514n2 is another individual with four well grown larvae with erect pseudostigmatic organs.

Koch describes *O. fuscipes* accurately and in detail, the bent, erect pseudostigmata are characteristic. The description of the lamellæ and tectopedia is good. Pteromorphae merging into posterior curve of abdomen is truer of *Fuscozetes* than of *Trichoribates*. As to the reidentity of *O. setosus* (2, fasc. 30/19), Koch says that the notogaster bristles of *O. fuscipes* are somewhat blunt, those of *O. setosus* are long (Latin) linearly arranged (German). The extra four bristles near the median line

would help to give this effect. Further the lamellæ of *O. fuscipes* are described as tapering to the bristle, those of *O. setosus* as thick. All these things considered I am perfectly satisfied that these two species are correctly reidentified as per Willmann (6, p. 168).

Zetes morticinus of Koch (2, fasc. 31/14) is more like Michael's plate 7, figure 2 than what Michael suggests (3, p. 241).

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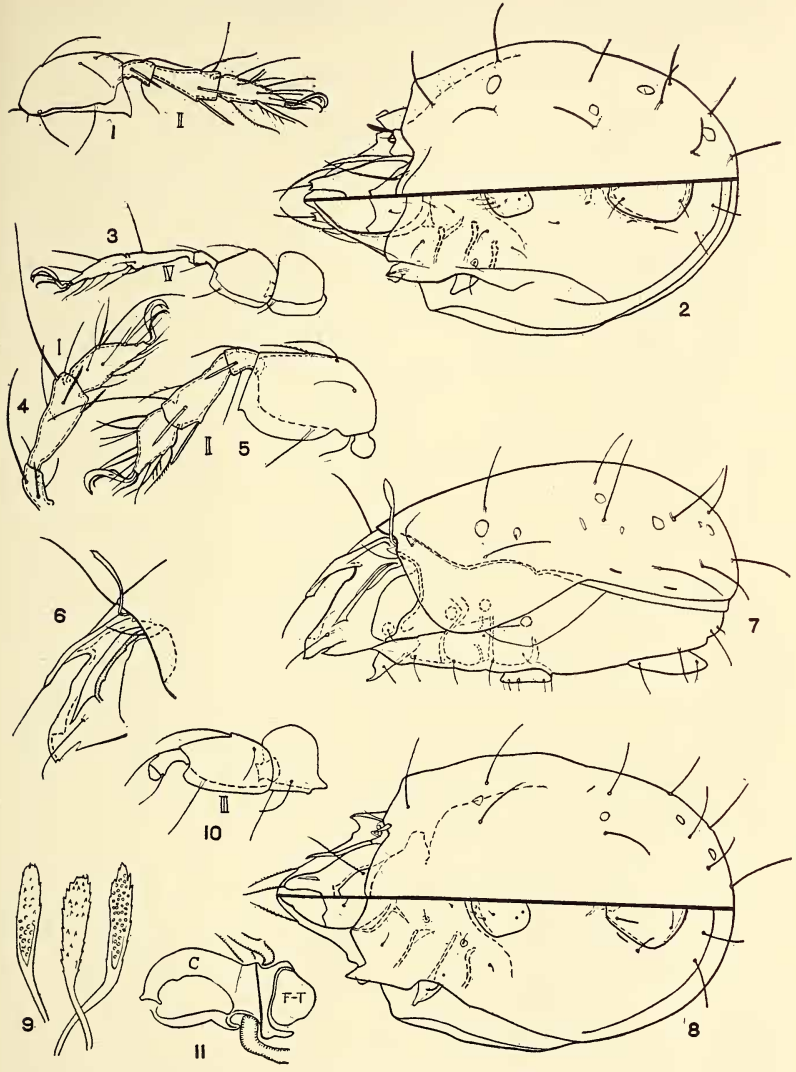
PLATE XXVI

Fuscozetes fuscipes (Koch), adult

- Figure 1. Legs II; ratio x150.
 Figure 2. Dorso/ventral aspects; legs and mouth parts omitted; ratio x120.
 Figure 6. Cephaloprothorax, lateral aspect, legs I and mouth parts omitted; ratio x120.

Fuscozetes bidentatus (Banks), adult

- Figure 3. Legs IV; ratio x150.
 Figure 4. Legs I (femur omitted); ratio x150.
 Figure 5. Legs II; ratio x200.
 Figure 7. Lateral aspect, legs and mouth parts omitted; ratio x120.
 Figure 8. Dorso/ventral aspects, legs and mouth parts omitted; ratio x120.
 Figure 9. Pseudostigmatic organs; ratio x440.
 Figure 10. Trochanter, femur and genual III, ratio x200.
 Figure 11. Coxæ I, with articulations of its trochanter with femoral trochanter, and body wall (shaded lines); ratio x440.



FUSCOZETES